

# Notes - Add and Subtract Rationals (9-2)

Remember: You need a common denominator



LCM (least common multiple)

Hint: Have you factored the denominators?

Ex 1: Find the LCM of  $\frac{x^2-5x}{x(x-5)}$  and  $\frac{x^2-25}{(x-5)(x+5)} \Rightarrow x(x-5)(x+5)$

Ex 2: Simplify  $\frac{7x \cdot 6x}{15y^2 \cdot 6x} + \frac{y \cdot 5y}{18xy \cdot 5y} = \frac{42x^2 + 5y^2}{90xy^2}$

LCM =  $90xy^2$

$15y^2 \cdot 6x$   
 $3 \cdot 5 \cdot y^2$   
Need  $6x$

$18xy \cdot 5y$   
 $3 \cdot 6 \cdot x \cdot y$   
Need  $5y$

Ex 3:  $\frac{x+12}{4x-16} - \frac{x+4 \cdot 2}{2x-8 \cdot 2} = \frac{x+12-2(x+4)}{4(x-4)} = \frac{x+12-2x-8}{4(x-4)}$

LCM =  $4(x-4)$

$4(x-4)$

$2(x-4)$

$= \frac{-x+4}{4(x-4)} = \frac{-1(x-4)}{4(x-4)} = \boxed{-\frac{1}{4}}$

Ex 4:  $\frac{\frac{1 \cdot y}{x \cdot y} \cdot \frac{1 \cdot x}{y \cdot x}}{\frac{1 \cdot x}{1 \cdot x} + \frac{1}{x}} = \frac{\frac{y-x}{xy}}{\frac{x+1}{x}} = \frac{(y-x)}{\cancel{xy}} \cdot \frac{\cancel{x}}{(x+1)} = \boxed{\frac{y-x}{y(x+1)}}$

HW: p. 482 # 4-42 even